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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,430	04/10/2006	Paulus Cornelis Duineveld	92781-253566	3725
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Venable LLP Raymond J. Ho 575 7th Street NW Washington, DC 20004-1601			EXAMINER RALEIGH, DONALD L.	
			ART UNIT 2879	PAPER NUMBER
			MAIL DATE 10/03/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/575,430	<b>Applicant(s)</b> DUINEVELD ET AL.	
	<b>Examiner</b> DONALD L. RALEIGH	<b>Art Unit</b> 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04/10/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

The Amendment, filed on July 10, 2008 has been entered and acknowledged by the Examiner.

Claims 1-15 are pending in the instant application.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwabara (US PG Pub. No. 2005/0057151) in view of Sirringhaus et al (US Patent No. 6,808,972).**

**Regarding Claims 1 and 7,** Kuwabara discloses in Figures 1A and 1B, an electroluminescent display panel comprising a substrate (20) and a plurality of display pixels (Paragraph [0196], lines 1-2), including an electroluminescent material (24) defined on or over said substrate (20) wherein said display panel further includes at least one hydrophobic layer (21)(Paragraph [0082], lines 4-5) between at least some adjacent display pixels (see Figure 1B), wherein the hydrophobic layer (21) is disposed between drops of the electroluminescent material (24) of adjacent display pixels (shown in Figure 1B) and prevents mixing of these drops between adjacent display pixels (It is obvious from figure 1B that the layer (24) would prevent mixing).

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Kuwabara fails to disclose that the hydrophobic layer is microcontact printed.

Sirringhaus teaches wherein said hydrophobic layer is a self-assembling monolayer(Column 14, lines 34-40) as a recognized part of the micro-contact printing process (Column 14, lines 40-43) in order to print very thin polyimide films that are thinner than the inkjet droplets (Column 14, lines 3-6).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the micro-contact printed hydrophobic layer, as taught by Sirringhaus, in the device of Kuwabara, in order to print very thin polyimide films that are thinner than the inkjet droplets.

**Regarding Claim 2**, Kuwabara, fails to exemplify the electroluminescent display panel wherein said hydrophobic layer is a self-assembling monolayer.

Sirringhaus teaches wherein said hydrophobic layer is a self-assembling monolayer(Column 14, lines 34-40) as a recognized part of the micro-contact printing process (Column 14, lines 40-43) in order to print very thin polyimide films that are thinner than the inkjet droplets (Column 14, lines 3-6).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the hydrophobic elements with a patterned self-assembled monolayer of Sirringhaus into the method of fabricating an electroluminescent display panel of Marks in order to print very thin polyimide films that are thinner than the inkjet droplets.

**Regarding Claim 3**, Kuwabara fails to exemplify the electroluminescent display panel wherein said substrate is a flexible substrate.

Sirringhaus teaches wherein said substrate is a flexible substrate (Column 1, lines 25-29) in order to achieve cheap large-area solutions.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the flexible substrate of Sirringhaus into the electroluminescent display panel of Kuwabara, in order to achieve cheap large-area solutions.

**Regarding Claim 4**, Kuwabara discloses in Figure 1B, the electroluminescent display panel wherein said display panel further comprises first (23) and second electrodes (25)(Paragraph [0084]) for said display pixels (the pixel is the combination of the two electrodes and the electroluminescent layer (24)), and a protection layer (28) isolating said first from said second electrodes between said display pixels (see figure 1B).

**Regarding Claim 5**, Kuwabara discloses in Figure 1B, the electroluminescent display panel wherein said microcontact printed hydrophobic layer (21) is defined on or over at least a part of said protection layer(28).

**Regarding Claim 6**, Kuwabara discloses in Figure 1B, an electroluminescent display panel wherein said microcontact printed hydrophobic layer (21) exposes a part of said protection layer (28) to said electroluminescent material (24)(they are in contact).

**Regarding Claim 8**, Kuwabara discloses at least in Figures 1A and 1B, a method for manufacturing an electroluminescent display panel (Paragraph 0002], lines 1-4) comprising the steps of: providing a substrate (20); providing a hydrophobic layer (21) for separating at least some adjacent display pixels (see Figure 1B) on or over said substrate (20); and depositing at least one electroluminescent material (24) over said

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substrate (20) wherein the hydrophobic layer (21) prevents mixing of drops of the electroluminescent material (24)(Figure 1B shows this. Also, see Paragraph [0021], lines 10-11).

Kuwabara fails to disclose that the hydrophobic layer is printed by microcontact printing.

Sirringhaus teaches wherein said hydrophobic layer is micro-contact printed (Column 14, lines 40-43) in order to print very thin polyimide films that are thinner than the inkjet droplets (Column 14, lines 3-6).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the micro-contact printed hydrophobic layer, as taught by Sirringhaus, in the device of Kuwabara, in order to print very thin polyimide films that are thinner than the inkjet droplets.

**Regarding Claim 9**, Kuwabara discloses in Figure 1A, the method wherein said method further comprises the steps of: providing first electrodes (13) on or over said substrate (10); providing a protection layer (12)(second bank) on said substrate (10), patterning said protection layer(12) (Paragraph [0075], line 15) to determine display pixel areas (14)(see Figure 1A); providing said hydrophobic layer (11)(first bank)(Para. [0021], lines 7-8 teaches that the first bank is hydrophobic) between said display pixel areas (14).

Kuwabara fails to disclose that the hydrophobic layer is provided by microcontact printing.

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Sirringhaus teaches wherein said hydrophobic layer is micro-contact printed (Column 14, lines 40-43) in order to print very thin polyimide films that are thinner than the inkjet droplets (Column 14, lines 3-6).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the micro-contact printed hydrophobic layer, as taught by Sirringhaus, in the device of Kuwabara, in order to print very thin polyimide films that are thinner than the inkjet droplets.

**Regarding Claim 10**, Kuwabara discloses in Figure 1A, the method wherein said method further comprises the steps of: depositing at least one electroluminescent material (14) over said substrate (10); providing a metallic layer (15)(cathode) on or over at least said electroluminescent material (14)(Figure 6B shows the steps in the method).

**Regarding Claim 11**, Kuwabara discloses in Figure 1A, the method wherein said hydrophobic layer (11) is obtained by fluorinating (Paragraph [0085], lines 1-3).

Kuwabara fails to disclose that the hydrophobic layer is a microcontact printed layer.

Sirringhaus teaches wherein said hydrophobic layer is micro-contact printed (Column 14, lines 40-43) in order to print very thin polyimide films that are thinner than the inkjet droplets (Column 14, lines 3-6).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the micro-contact printed hydrophobic layer, as

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taught by Sirringhaus, in the device of Kuwabara, in order to print very thin polyimide films that are thinner than the inkjet droplets.

**Regarding Claim 12**, Kuwabara, fails to disclose the method wherein said hydrophobic layer is microcontact printed on an inorganic layer, such as SiO<sub>2</sub> or ITO.

Sirringhaus teaches a microcontact printed hydrophobic layer (Column 14, lines 34-43) on the surface of a SiO<sub>2</sub> layer (Column 14, lines 60-61) in order to form stable monolayers on the surface of the SiO<sub>2</sub>. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the process of providing a microcontact printed hydrophobic layer on the surface of a SiO<sub>2</sub> layer, as taught by Sirringhaus, into the method of Kuwabara, in order to form stable monolayers on the surface of the SiO<sub>2</sub>.

**Regarding Claim 13**, Kuwabara fails to disclose the method wherein said hydrophobic layer is trimethoxy( 3,3,3 -trifluoropropyl)silane.

Sirringhaus teaches the method wherein said hydrophobic layer is trimethoxy( 3,3,3 -trifluoropropyl)silane (Column 14, lines 57-65) in order to achieve functionalization of the surface of the glass substrate with a patterned self-assembled monolayer (Column 14, lines 36-37). It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the process of adding trimethoxy(3,3,3--trifluoropropyl)silane to the hydrophobic layer, as taught by Sirringhaus, into the method of Kuwabara, in order to achieve functionalization of the surface of the glass substrate with a patterned self-assembled monolayer.



**Regarding Claim 14**, Kuwabara fails to disclose the method wherein said hydrophobic layer is microcontact printed on a polymer layer.

Sirringhaus teaches wherein said hydrophobic layer is microcontact printed on a polymer layer (Column 14, lines 57-65)(The monolayer refers to the hydrophobic layer of Column 14, lines 35-44) in order to form a stable monolayer (Column 14, line 60-61)(The monolayer refers to hydrophobic layer of Column 14, lines 35-44].It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the microcontact printing of a monolayer on a polymer dielectric layer, as taught by Stirringhaus into the method of fabricating an electroluminescent display panel of Kuwabara, in order to form a stable monolayer.

**Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwabara (151) in view of Sirringhaus (972) and further in view of Cox (US Patent No. 6,166,439) and Chilkoti et al (US PG Pub. No. 2003/0059537)**

**Regarding Claim 15**, Kuwabara, as modified by Sirringhaus, fails to disclose the method wherein said hydrophobic layer is obtained by the steps of: microcontact printing of poly(tert-butylacrylate) on a polyethylene layer; wet- chemical treatment of said poly(tert-butylacrylate) to yield a polyacrylic acid hyperbranched film; fluorination of at least a part of said polyacrylic acid hyperbranched film.

Chilkoti teaches (Paragraph [0139], lines 5-6) using microcontact printing (also, the title (microstamping)) of poly(tert-butylacrylate) on a polyethylene layer and

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paragraph [0068], lines 1-19, teaches the combination of polyethylene (line 8) and polyacrylates (line 12) which would include poly(tert-butylacrylate) to impart non-biodegradable hydrophobic properties to the backbones of the comb copolymers (Paragraph [0068], lines 5-7).

Finally, Cox teaches wet-chemical treatment (Column 7, line 59 (hydrolysis)) of said poly(tert-butylacrylate (lines 58-59) to yield a polyacrylic acid (line 60) hyperbranched film (lines 61-62, high degree of branching) and fluorination of at least a part of said polyacrylic acid hyperbranched film (line 55, addition of fluorinated polymer) in order to bond a polymeric material to an insulating layer or a substrate. (Abstract, lines 5-11).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the microcontact printing of polyacrylates (poly(tert-butylacrylate) on a polyethylene layer of Chilkoti and using the wet chemical treatment and fluorination of Cox in manufacturing the electroluminescent display panel of Kuwabara as Sirringhaus, in order to bond a polymeric material to an insulating layer or a substrate and to impart non-biodegradable hydrophobic properties to the backbones of the comb copolymers .

### ***Response to Arguments***

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to the rejection(s) of claim(s) 4 under Marks have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made under Kuwabara in view of Sirringhaus.

Applicant's argument with regards to claim 15 are moot because the amendment of Claim 8, on which it depends, necessitates a new search and new prior art references.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DONALD L. RALEIGH whose telephone number is (571)270-3407. The examiner can normally be reached on Monday-Friday 7:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Donald L Raleigh/  
Examiner, Art Unit 2879

/Mariceli Santiago/  
Primary Examiner, Art Unit 2879